

**DETAILED ACTION**

***Withdrawn Rejections***

1. Any rejections and or objections, made in the previous Office Action, and not repeated below, are hereby withdrawn due to Applicant's arguments in the response dated March 3, 2008.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
3. Claims 1, 3 – 5, 8, 10, 11, 16 – 18, 20, 21, 23, 25, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennen (USPN 6,982,107) in view of Tushaus (USPN 3,718,712).

Hennen discloses a pressure sensitive adhesive article (Column 1, lines 7 – 8) comprising a pressure sensitive adhesive layer (Column 8, line 12) mainly formed of polyurethane resin (Column 8, line 16) and free of silicone compound in an amount of 500 g/m<sup>2</sup> or less (Column 8, lines 12 – 57) and a releasing agent layer mainly formed of polyolefin resin (Column 3, lines 60 – 65) selected from polyethylene, polypropylene, ethylene α copolymers, olefin based thermoplastic elastomer and mixtures thereof (Column 3, lines 25 – 45; Column 6, lines 15 – 23) having a density equal to or less than 0.94 g/cm<sup>3</sup> (Column 5, lines 62 – 67), which inherently has a numerical average molecular weight of about 15,000 to about 500,000 determined by GPC

based on the composition, adhered to the pressure sensitive adhesive layer (Column 3, lines 12 – 13), wherein the releasing agent layer that faces the pressure sensitive adhesive layer has a tension of almost zero, thereby being less than 22mN/m (Column 7, lines 26 – 46) as in claims 1 – 3, 5, 11 and 16. With regard to claims 4 and 8, the pressure sensitive adhesive sheet includes a base material of plastic film on which the pressure sensitive adhesive is provided (Column 3, lines 25 – 27), and the release sheet includes a release sheet base material on which the releasing agent layer is provided (Column 4, lines 65 to Column 5, line 1; Column 6, lines 42 – 46), the release sheet being removable attached to the pressure sensitive adhesive layer of the pressure sensitive adhesive sheet through the releasing agent layer thereof (Column 7, lines 26 – 46). As in claim 10, the pressure sensitive adhesive article is a tape (Column 8, lines 67 to Column 9, line 1), which comprises a base material having both surfaces with a pressure sensitive adhesive on side and a releasing agent layer on the other being would into a roll form until it is used (Column 9, lines 1 – 3; Column 7, lines 56 – 67). The polyolefin resin is selected from the group consisting of a polyethylene resin whose density is 0.9 to 0.922 g/m<sup>2</sup> (Column 5, lines 62 – 67) and an olefin based thermoplastic elastomer whose density is 0.86 to 0.88 g/m<sup>2</sup> (Column 6, lines 21 – 23), wherein the thermoplastic elastomer is an ethylene-octene copolymer (Column 6, lines 15 – 21) as in claims 17 and 18. With regards to claims 20 and 21, an adhesion enhancing layer is provided between the release sheet base material and the release agent layer, wherein the release sheet base material is a plastic film (Column 3, lines 25 – 27) and the adhesion enhancing layer is made of polyethylene resin (Column 4, lines 53 – 60). However, Hennen fails to disclose the polyurethane resin being obtained by reacting polyol and polyisocyanate, the polyol comprising at least one of polyester polyol and polyether polyol, and the polyisocyanate

comprising at least one of aromatic polyisocyanate, aliphatic polyisocyanate, aromatic-aliphatic polyisocyanate and alicyclic polyisocyanate, and wherein the amount of the polyisocyanate to be compounded with respect to 100 parts by weight of the polyol is in the range of 1 to 30 parts by weight, the polyol being polyether polyol, the polyisocyanate being alicyclic polyisocyanate, the mole equivalent of isocyanate group of the polyisocyanate with respect to one mole equivalent of active hydrogen contained in hydroxyl group of the polyol that can react with the isocyanate group is larger than 1 and the mole equivalent of isocyanate group of the polyisocyanate with respect to one mole equivalent of active hydrogen contained in hydroxyl group of the polyol that can react with the isocyanate group falls within the range of 1.40 to 3.00.

Tushaus teaches a the polyurethane resin being obtained by reacting polyol and polyisocyanate (Claim 1), the polyol comprising a polyether polyol (Claim 8), and the polyisocyanate comprising aromatic polyisocyanate (Column 2, lines 40 - 42), wherein the amount of the polyisocyanate to be compounded with respect to 100 parts by weight of the polyol is in the range of 1 to 30 parts by weight (Column 2, lines 11 - 17) and the mole equivalent of isocyanate group of the polyisocyanate with respect to one mole equivalent of active hydrogen contained in hydroxyl group of the polyol that can react with the isocyanate group falls within the range of 1.40 to 3.00 (Claim 6) for the purpose of forming a pressure sensitive adhesive that has high peel adhesion, quick stick and shear strength with resistance to hydrocarbon solvents (Column 1, lines 40 - 42).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to have provided the polyurethane resin being obtained by reacting polyol and polyisocyanate in Hennen in order to form a pressure sensitive adhesive that has high peel adhesion, quick stick and shear strength with resistance to hydrocarbon solvents as taught by Tushaus.

With regard to the release agent having a numerical average molecular weight of about 15,000 to about 500,000 determined by GPC based on the composition, it is inherent that the polyolefin resin of Hennen would meet the numerical average molecular weight as claimed since the releasing agent is selected from polyethylene, polypropylene, ethylene  $\alpha$  copolymers, olefin based thermoplastic elastomers and mixtures thereof (Column 3, lines 25 – 45; Column 6, lines 15 – 23) having a density equal to or less than 0.94 g/cm<sup>3</sup> (Column 5, lines 62 – 67), which overlaps the Applicant's claimed characteristics of the releasing agent layer as shown by the limitations presented by claim 17. Therefore, it would be inherent that the polyolefin resins of the release agent of Hennen would have a numerical average molecular weight of about 15,000 to about 500,000 determined by GPC based on the composition.

With regard to the limitation of the polyisocyanate being alicyclic polyisocyanate, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use alicyclic polyisocyanate, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. MPEP 2144.07.

4. Claims 6, 7, 9, 12, 13, 15 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennen (USPN 6,982,107) in view of Tushaus (USPN 3,718,712) as applied to claims 1, 3 – 5, 8, 10, 11, 16 – 18, 20, 21, 23, and 25 above, and further in view of Shikinami et al. (USPN 4,855,077).

Hennen, as modified with Tushaus, discloses a pressure sensitive adhesive article (Column 1, lines 7 – 8) comprising a pressure sensitive adhesive layer (Column 8, line 12) mainly formed of polyurethane resin (Column 8, line 16) and free of silicone compound in an amount of 500 g/m<sup>2</sup> or less (Column 8, lines 12 – 57) and a releasing agent layer mainly formed of polyolefin resin (Column 3, lines 60 – 65) selected from polyethylene, polypropylene, ethylene α copolymers, olefin based thermoplastic elastomer and mixtures thereof (Column 3, lines 25 – 45; Column 6, lines 15 – 23) having a density equal to or less than 0.94 g/cm<sup>3</sup> (Column 5, lines 62 – 67), which inherently has a numerical average molecular weight of about 15,000 to about 500,000 determined by GPC based on the composition, adhered to the pressure sensitive adhesive layer (Column 3, lines 12 – 13), wherein the releasing agent layer that faces the pressure sensitive adhesive layer has a tension of almost zero, thereby being less than 22mN/m (Column 7, lines 26 – 46). However, the modified Hennen fails to disclose the amount of the gas generated from the pressure sensitive adhesive sheet is equal to or less than 20 mg/m<sup>2</sup>, the pressure sensitive adhesive sheet contains ions from a select group in an amount equal to or less than 20 mg/m<sup>2</sup> and an antistatic layer provided on one or both of the surfaces of the base material.

Shikinami et al. teach an antistatic layer provided on one or both of the surfaces of the base material (Column 4, lines 62 – 64) in combination with ions from a select group in an amount equal to or less than 20 mg/m<sup>2</sup> (Column 13, lines 10 – 26) in a pressure sensitive adhesive article, wherein the article is a pressure sensitive adhesive tape which comprises a base material having both surfaces, the pressure sensitive adhesive layer provided on one of the surfaces of the base material and the releasing agent layer provided on the other surface of the base material, wherein the pressure sensitive adhesive tape being wound in a roll form until it is used (Column 4, lines 57 – 58) for the purpose of using the adhesive material as a sticking agent for sticking tapes having an antistatic sticking layer in the fields of industry, agriculture, packaging and electronics (Column 1, lines 30 – 33).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to have provided the ions from the select group and an antistatic layer in the modified Hennen in order to have a adhesive material as a sticking agent for sticking tapes having an antistatic sticking layer in the fields of industry, agriculture, packaging and electronics as taught by Shikinami et al.

In regards to the limitations of a wet tension test defined by JIS K 6768, the amount of the gas generated from the pressure sensitive adhesive sheet is equal to or less than 20 mg/m<sup>2</sup> in claims 1 – 3, 6, 12 and 15, one of ordinary skill in the art would have recognized the claimed pressure sensitive article would have a wet tension test defined by JIS K 6768, the amount of the gas generated from the pressure sensitive adhesive sheet is equal to or less than 20 mg/m<sup>2</sup> since

Hennen teaches a pressure sensitive article having the same parameters as the claimed invention. Therefore, one of ordinary skill in the art would readily determine the tension, density and amount of gas generated depending on the end desired results in the absence of unexpected results.

5. Claims 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennen (USPN 6,982,107) in view of Tushaus (USPN 3,718,712) as applied to claims 1, 3 – 5, 8, 10, 11, 16 – 18, 20, 21, 23, and 25 above, and further in view of Crandall (USPN 5,645,938).

Hennen, as modified with Tushaus, discloses a pressure sensitive adhesive article (Column 1, lines 7 – 8) comprising a pressure sensitive adhesive layer (Column 8, line 12) mainly formed of polyurethane resin (Column 8, line 16) and free of silicone compound in an amount of 500 g/m<sup>2</sup> or less (Column 8, lines 12 – 57) and a releasing agent layer mainly formed of polyolefin resin (Column 3, lines 60 – 65) selected from polyethylene, polypropylene, ethylene  $\alpha$  copolymers, olefin based thermoplastic elastomer and mixtures thereof (Column 3, lines 25 – 45; Column 6, lines 15 – 23) having a density equal to or less than 0.94 g/cm<sup>3</sup> (Column 5, lines 62 – 67), which inherently has a numerical average molecular weight of about 15,000 to about 500,000 determined by GPC based on the composition, adhered to the pressure sensitive adhesive layer (Column 3, lines 12 – 13), wherein the releasing agent layer that faces the pressure sensitive adhesive layer has a tension of almost zero, thereby being less than 22mN/m (Column 7, lines 26 – 46). However, the modified Hennen fails to the polyurethane-urea resin.

Crandall teaches a binder layer made of a polyester and a polyisocyanate that contains at least two isocyanate groups bonded non-conjugatively to at least one aromatic nucleus wherein the polymer may also contain urea (Column 3, lines 25 – 34) for the purpose of forming a binder that is flexible and has hydrolytic stability (Column 2, lines 50 – 56).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to have provided the polyurethane-urea resin in the adhesive in the modified Hennen in order to form a binder that is flexible and has hydrolytic stability as taught by Crandall.

*Response to Arguments*

6. Applicant's arguments with respect to claims 1, 3 – 13, 15-18, 20, 21 and 23 - 28 have been considered but are moot in view of the new ground(s) of rejection.

In response to Applicant's arguments, please see the new rejection in view of Tushaus (USPN 3,718,712).

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Nordmeyer whose telephone number is (571)272-1496. The examiner can normally be reached on Mon.-Thurs. from 10:00-7:30 & alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L. Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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